

**IN THE CLAIMS**

Claims 1-6 (Canceled)

Claim 7. (Previously Presented) A multiple delay line comprising:

an arrayed waveguide grating comprising:

a plurality of input ports; and

a plurality of output ports; and

a plurality of sections of a dispersive optical medium forming at least one feedback line in the arrayed waveguide grating, wherein the plurality of sections of the dispersive optical medium have lengths with a constant linear incremental increase,

wherein a different delay is introduced for each wavelength in an optical carrier according to a free spectral range of the arrayed waveguide grating,

wherein the different delays of the wavelengths in the optical carrier form a delay profile of the optical carrier, and

wherein the different delays are obtained by dispersion occurring in the plurality of sections of the dispersive optical.

Claim 8. (Currently Amended) The multiple delay line according to claim [[1]] 7, wherein the plurality of sections of the dispersive optical medium comprises at least one of a section of a dispersive optical fiber, a diffraction network, and a medium that is dispersive in both transmission and reflection.

Claim 9. (Currently Amended) The multiple delay line according to claim [[1]] 7, wherein the at least one feedback line forms a loop-back configuration.

Claim 10. (Previously Presented) The multiple delay line according to claim 9, wherein the at least one feedback line extends between one of the input ports and a corresponding one of the output ports.

Claim 11. (Previously Presented) The multiple delay line according to claim 9, wherein the at least one feedback line extends between one of the input ports and a non-corresponding one of the output ports.

Claim 12. (Currently Amended) The multiple delay line according to claim [[1]] 7, wherein the at least one feedback line forms a fold-back configuration.

Claim 13. (Previously Presented) The multiple delay line according to claim 12, wherein the at least one feedback line extends between two different output ports.

Claim 14. (Previously Presented) The multiple delay line according to claim 12, wherein the at least one feedback line extends between the same output port.

Claim 15. (Currently Amended) The multiple delay line according to claim [[1]] 7, wherein the delay introduced by the multiple delay line is a multiple of the free spectral range of the arrayed waveguide grating.

Claim 16. (Currently Amended) The multiple delay line according to claim [[1]] 7, wherein a different delay profile is created for each optical carrier of a plurality of optical carriers simultaneously introduced into the multiple delay line.

Claim 17. (Currently Amended) The multiple delay line according to claim [[1]] 7, wherein the at least one feedback line is formed between at least one of an input port, an output port, two different input ports, two different output ports, and an input port and an output port.